UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/353,460	07/13/1999	JIUNN-TSAIR CHEN	5-8-3	3576

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EXAMINER
HOANG, THAI D

ART UNIT	PAPER NUMBER
2667	

DATE MAILED: 05/06/2004   12

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

Office Action Summary	Application No.	Applicant(s)
	09/353,460	CHEN, JIUNN-TSAIR
	Examiner	**Art Unit**
	Thai D Hoang	2667

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>03</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *Amendment filed on 02/20/2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-47* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-47* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

        1.☐ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____.

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the
United States before the invention thereof by the applicant for patent, or on an international application
by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this
title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act

of 1999 (AIPA) and the Intellectual Property and High Technology Technical

Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting

directly or indirectly from an international application filed before November 29, 2000.

Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior

to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1-2, 10-11, 18-19, 27-29, 37-39 and 47 are rejected under 35

U.S.C. 102(e) as being unpatentable by Keskitalo et al., US patent No. 6,212,406,

hereafter referred to as Keskitalo.

Regarding claims 1, 11, 18, 28 and 38, Keskitalo discloses a method and system

for providing angular diversity, and base station equipment. Keskitalo teaches a base

station including means for searching for the incoming directions (α) and delays (ζ) of

the received signal components (col. 4, lines 3-5; col. 6, lines 17-22; col. 7, lines 1-3)

(determining propagation characteristics of said plurality of channels). Furthermore,

Keskitalo discloses that a receiver detects the direction and code phase of the reception

of the best signals. The receiver thus knows at all times the directions from which the

best signal components from the mobile stations are received. This information can also

be used in the base station equipment according to the invention in the downlink

direction (col. 7, line 57-col. 8, line 3). It indicates that the system the best spreading

code is selected and assigned to the wireless terminals based on said propagation

characteristics (α, ζ).

Regarding claims 2, 19, 29 and 39, the method disclosed by Keskitalo inherently

chooses a wireless terminal to assign spreading codes to the plurality of wireless

terminals because the system monitors and measures uplink and downlink signal

between the base station and the mobile terminals (choosing a target wireless terminal;

and assigning a spreading code to said target wireless terminal).

Regarding claims 10, 27, 37, and 47, since the system disclosed by Keskitalo is

a CDMA system, it has to transmit spreading codes to the mobile terminals.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

a.   Claims 3-5, 7, 12-14, 16, 20-22, 24, 30-32, 34, 40-42 and 44 are rejected under

35 U.S.C. 103(a) as being unpatentable over Keskitalo et al., US patent No. 6,212,406,

in view of Magnusson et al, US Patent No. 6,163,524, hereafter referred to as Keskitalo

and Magnusson respectively.

Regarding claims 3-5, 12-14, 20-22, 30-32 and 40-42, Keskitalo only discloses the system searches the best code for assigning to the terminal; col. 6, lines 17-29; col. 7, lines 57-65. Keskitalo does not teach that the code is searched randomly. However, Magnusson discloses that the codes can be allocated randomly from the available eligible codes. It would have been obvious to one of ordinary skill in the art at the time the invention was made to adapt randomly search method disclosed by Magnusson into Keskitalo's system in order to improve the quality of service because the best code signal is quickly detected. Since voice service is an interactive service, therefore, it requires a minimum time delay value during a service. Thus, the service is improved when the best code signal for assigning to the mobile phone is quickly detected.

Regarding claims 7, 16, 24, 34 and 44, Keskitalo disclose that the best code signal is selected and assigned to a mobile phone based on time of arrival combined with direction of arrival col. 6, lines 17-29; col. 7, lines 57-65. Therefore, it implies that Keskitalo's system performs a gradient search of transmission delays for the improved code.

b.   Claims 6, 8, 15, 17, 23, 25, 33, 35, 43 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keskitalo et al., US patent No. 6,212,406, in view of Magnusson et al, US Patent No. 6,163,524 and further in view of Easton, US Patent No. 5,764,687 hereafter referred to as Keskitalo, Magnusson and Easton respectively.

Regarding claims 6, 15, 23, 33 and 43, Keskitalo teaches that the system performs a gradient search of code signal, but does not teach the search is performed in a space area surrounding improved code. However, Easton discloses a system,

which searches all area of the signals by search windows (col. 11, line 54 – col. 12, line 2; col. 13, line 66 – col. 14, line 11). Therefore, the system disclosed by the Easton inherently searches in the signal space area surrounding the improved code. It would have been obvious to one of ordinary skill in the art at the time the invention was made to adapt the searching method disclosed by Easton into Keskitalo's system for the same purpose as mentioned in claim 3.

Regarding claims 8, 17, 25, 35 and 45, Keskitalo teaches that the system performs a gradient search of code signal, and the best code signal is selected and assigned to a mobile phone based on time of arrival combined with direction of arrival (α, ζ). Keskitalo does not teach the search is performed in a space area surrounding improved code. However, Easton discloses a system, which searches all area of the signals by search windows (col. 11, line 54 – col. 12, line 2; col. 13, line 66 – col. 14, line 11). It would have been obvious to one of ordinary skill in the art at the time the invention was made to adapt the searching method disclosed by Easton into Keskitalo's system for the same purpose as mentioned in claim 3.

c.   Claims 9, 26, 36 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keskitalo et al., US patent No. 6,212,406, in view of Dent, US Patent No. 5,831,977, hereafter referred to as Keskitalo and Dent respectively.

Regarding claims 9, 26, 36 and 46, Keskitalo does not clearly disclose limitations recited in these claims. However, the base station in the system disclosed by Dent receives a plurality codes signals from the mobile phones to process received signals. It implies that the base station has to maintain a processing set of the plurality of mobile

phones for processing. In addition, Dent's system uses CDMA technique; therefore, each mobile telephone is assigned a particular code for communication (individually assigning codes to said wireless terminals in said processing set). Furthermore, Dent discloses that a channel tracker determines which of the times-of-arrival combined with which directions-of-arrival contain the most energy and combines these signals using for example the aforementioned inventive RAKE combiner having quantized coefficients. When the largest value has been found, its value is returned to the channel tracker to update the coefficient in time for the next symbol period; fig. 4; col. 10, lines 15-50. After the largest value has been determined for a particular mobile phone, the system determines coded signals for another mobile phone (adding a wireless terminal to said processing set when said step of individually assigning codes to said wireless terminals in said processing set has converged and repeating said step of individually assigning codes). It would have been obvious to one of ordinary skill in the art at the time the invention was made to adapt the searching method disclosed by Dent into Keskitalo's system for improving searching the best code procedure.

Response to Arguments

Applicant's arguments with respect to claims 1-47 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thai D Hoang whose telephone number is (703) 305-3232. The examiner can normally be reached on Monday-Friday 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Chi Pham can be reached on (703) 305-4378. The fax phone number for

the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

Thai Hoang

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